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Fact Sheet: China and U.S. Ratification By the Numbers

United States and China Pledges to Paris Agreement Account for Half of Agreement's Climate Impact

Climate Interactive and MIT Sloan have provided the following calculations and data from their C-ROADS simulation and other sources.

Current emissions: Currently, the United States and China together produce 38% of global greenhouse gas emissions. The Paris Agreement can come into force when 55 UNFCCC parties representing 55% of global greenhouse gas emissions have ratified the Agreement.

- The United States currently produces 18% of global greenhouse gas emissions and China emits 20%, for a total of 38%.

Contribution of the pledges to addressing climate change: The China and United States pledges to the Paris Agreement would deliver half of the agreement's climate impact.

- The Intended Nationally Determined Contributions (INDCs) of China and the United States would deliver 51% of the avoided cumulative carbon dioxide emissions from 2016-2100 from all of the INDCs in the Paris Agreement. Percent of avoided cumulative carbon dioxide is a measure of a country's actions to prevent future climate change.
- The United States would deliver 19% of the avoided cumulative carbon dioxide emissions from 2016-2100. China would deliver 31%, for a total of 51% together (note: they do not sum due to rounding).
 - Of the avoided cumulative carbon dioxide emissions from 2016-2100 from the United States and China pledges, 38% would come from the United States and 62% would come from China.

Pledges to the Paris Agreement (INDCs): China has pledged to peak carbon dioxide (CO₂) emissions by 2030, decrease the carbon intensity of its economy, increase non-fossil energy sources, and increase forest stocks. The United States has pledged to reduce emissions of all greenhouse gases 26-28% below 2005 levels by 2025.

Avoided emissions from the pledges: If the China and the United States meet their pledges, 1210 gigatons (billion tons) of carbon dioxide would be kept out of the atmosphere.

Current per capita emissions: Today, average greenhouse gas emissions per person are 10 tons/year in China and 22 tons/year in the United States.

Historic responsibility for causing climate change: The United States with 4.4% of the global population, has emitted 21% of all carbon dioxide to date since 1870. China, with 19% of the global population, has emitted 12%.

- **Between 1990 and 2016**, the United States and China have each emitted 17% of the world’s carbon dioxide.

Capacity to address climate change: The United States produces 17% of global GDP. China produces 20%.

Effect of global pledges: The pledges submitted to the Paris Agreement would result in expected warming by 2100 of 3.5°C (6.3°F) with a range of uncertainty from 2.1 to 4.7°C (3.7 to 8.4°F), assuming no action post 2025-2030, the end of the pledge period.

Requirements to meet Paris goals: Deeper, earlier emissions cuts are needed to limit warming to well below 2°C or all the way to the Paris Agreement goal of 1.5°C. Analysis by Climate Interactive shows that in one possible scenario to limit warming to 1.5°C, it would be necessary for the United States to decrease its emissions approximately 10% per year, more aggressively than pledged in its INDC, starting in 2020. And China would need to peak its emissions by 2025, not 2030, and begin reducing emissions approximately 3.5% per year thereafter.

Pledge and Business as Usual Scenarios

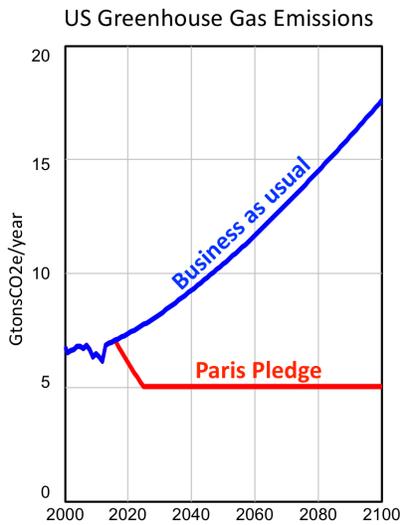


Figure 1: Greenhouse gas emission reductions from the U.S. INDC (red) relative to the Business as usual scenario (blue). The U.S. has committed to reducing greenhouse gas emissions 26% below 2005 levels by 2025. We have assumed that, after 2025, emissions stay flat.

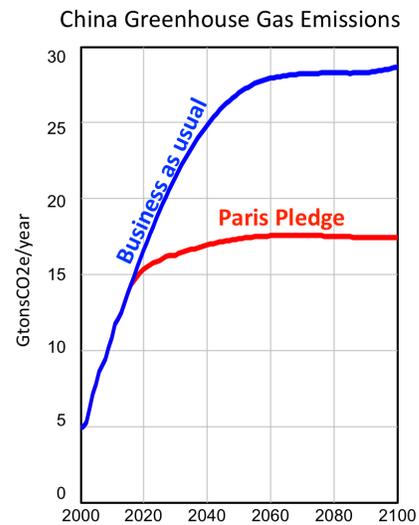


Figure 2: Greenhouse gas emission reductions from the China INDC (red) relative to the Business as usual scenario (blue). China has committed to peaking emissions of carbon dioxide (CO₂) by 2030 and reforesting land. We have assumed that, after 2030, CO₂ emissions stay flat but other greenhouse gas emissions continue to rise slightly.

The [Climate Scoreboard](#) analysis is produced by Climate Interactive in partnership with the Massachusetts Institute of Technology Sloan School of Management (MIT Sloan). The Scoreboard is calculated with the C-ROADS (Climate-Rapid Overview and Decision Support) computer simulation, which is calibrated to the Intergovernmental Panel on Climate Change’s (IPCC) Fifth Assessment Report results. C-ROADS is [downloadable](#) and available for public use. Climate Interactive is a Washington D.C.-based not-for-profit think tank. The data are based on the countries’ current commitments. The Paris Agreement requests that countries make new pledges every five years, improving those commitments.

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